AS/2 AUTO SWITCH

AS-401P/AS-402P/AS-401S/AS-402S

User's Manual

NOTICE

This manual is written for the Auto Switch products of AS-401P, AS-402P, AS-401S and AS-402S. Mostly the operating methods for these models are much the same for one another. There are some differences among these models. The last character 'P' and 'S' of each model's string means the parallel interface and the serial interface respectively. If there is any difference among these models, we will specify the related information for the specified models.

In this manual, we will use the 'AS/2' to represent all the models of AS-401P, AS-402P, AS-401S and AS-402S. When you purchase this product it should contain the following elements.

PACKAGE CHECKLIST

- An AS/2(any one of AS-401P/AS-402P/AS-401S/AS-402P)
- The Power Adapter spec. depends on the following product model

Model	Spec.
AS-401P	DC 9V 500mA
AS-402P	DC 9V 600mA
AS-401S	AC 9V 500mA
AS-402S	DC 9V 500mA

- A 5 1/4" (or 3 1/2") Floppy Diskette with AS/2-WARE, Hot Key Control Programs (suitable for IBM PC/XT/AT, DOS V 3.0 or later version)

NOTE: AS/2-WARE is offered for AS-402P and AS-402S only.

- An AS/2 Auto Switch User's Manual

QUICK LOOK INTERFACE TABLE

MODEL	INPUT PORT	OUTPUT PORT	AS/2-WARE SUPPORTED
AS-401P	4 CENTRONICS Female	1 CENTRONICS Female	No
AS-402P	4 CENTRONICS Female	2 CENTRONICS Female	Yes
AS-401S	4 RS-232C(DCE) Female	1 RS-232C(DTE) Male	No
AS-402S	4 RS-232C(DCE) Female	2 RS-232C(DTE) Male	Yes

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1   FUNCTION OVERVIEW

1-1   INTRODUCTION

The **AS/2** is a high performance and low cost printer sharing device which can operate in either auto switching mode or manual switching mode. The **AS/2** allows up to four source devices to share one or two common devices. In the auto switching mode the **AS/2** automatically locks-on and services the source device that requests to link with the desired common device. However, in the manual switching mode the **AS/2** works exactly the same way as the conventional data switch.

There are four models, AS-401P, AS-402P, AS-401S and AS-402S, which belong to the **AS/2** Auto Switch products. They can be divided into two types of Auto Switches according to their input/output interfaces. One is the Parallel Interface(i.e. AS-401P and AS-402P) and the other is the Serial interface(i.e. AS-401S and AS-402S). The major difference between the AS-401P and AS-402P is that the AS-402P has two output ports. Also the AS-402P has an **AS/2-WARE**, Hot Key Control Programs which can support user to change the current output port to the desired output port or to broadcast the data to both output ports. The major differences between AS-401S and AS-402S are much the same as AS-401P/AS-402P's. These differences can be quickly understood by reading the following table.

MODEL	INPUT PORT	OUTPUT PORT	CONNECTION
AS-401P	4 CENTRONICS Female	1 CENTRONICS Female	Fig 2-1-1
AS-402P	4 CENTRONICS Female	2 CENTRONICS Female	Fig 2-1-2
AS-401S	4 RS-232C(DCE) Female	1 RS-232C(DTE) Male	Fig 2-1-3
AS-402S	4 RS-232C(DCE) Female	2 RS-232C(DTE) Male	Fig 2-1-4

The **AS/2** tremendously improves the efficiency of your switching applications. We suggest that you take a few moments of your time to carefully

1-2 FUNCTION SPECIFICATIONS

FUNCTIONS		PARALLEL MODEL	
		AS-401P	AS-402P
Power Supply		DC 9V, 500mA	DC 9V, 600mA
Cable Distance		9m	
CONNECTOR (DB-25)Female	INPUT	4 CENTRONICS	
	OUTPUT	1 CENTRONICS	2 CENTRONICS
LED	Input Status	4 (Green)	4 (Green)
	Output Status	None	2 (Yellow)
	Power	1(Green)	1(Green)
	Manual	1(Yellow)	1(Yellow)
Input Arbitration		First Come, First Serves	
Function Key		Manual Select	
Input Port Selection		Auto or Manual	
Output Port Selection		None	DIP SW & AS/2 -WARE
Time out Selection		0.6 - 80 sec.	
Auto From Feed		Enabled/Disabled	
Operation Temp.		5°c - 40°c	
Stock Temp.		-20°c - 60°c	
Humidity		0% - 80%	
Enclosure		Plastic and Metal.	
Weight		1Kg	
Dimensions		270x145x34.5 mm	

Fig. 1-2-1 AS-401P/AS-402P's Function Specifications

Fig. 1-1-5 AS/2's Rear View

DIP SW
RESET
DC 9V JACK
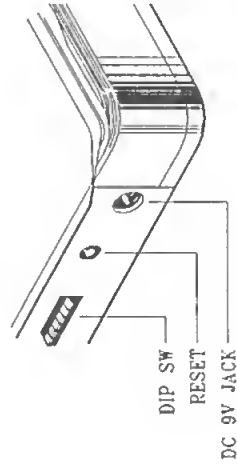
NOTE: The rear view of AS/2 is identical to all models

1-3 PRODUCT LIMITATION

AS/2 is a well designed quality product. Its maximum performance and limitation is described as follows.

- **AS/2**'s Auto Switching Mode is only suitable for devices which use 'Hardware' Handshaking, Xon-Xoff Handshaking is not allowed.

- **AS/2**'s Manual Switching Mode is suitable for all kinds of Hand-shaking Modes.

- For model AS-402P and AS-401P, the cable length is limited no more than 9 meters.

- For model AS-402S and AS-401S, the cable length is limited no more than 15 meters.

- The Input Ports and the Output Ports are constantly configured to be DTE or DCE that are shown in section 1-2 Function Specifications. Make sure you are using the right cable to connect your PC or devices to **AS/2**.

  NOTE: DTE means Data Terminal Equipment.

  DCE means Data Communications Equipment.

- The Serial Interface and Parallel Interface mentioned on this manual are RS-232C and Centronics respectively (please refer to Appendix B).

- **AS/2** is IBM PC/AT/XT compatible.

FUNCTIONS		SERIAL MODEL	
		AS-401S	AS-402S
Power Supply		AC 9V, 500mA	DC 9V, 500mA
Cable Distance		15m	
CONNECTOR (DB-25)	Input(Female)	4 RS-232C(DCE)	
	Output(Male)	1 RS-232C(DTE)	2 RS-232C(DTE)
LED	Input Status	4 (Green)	4 (Green)
	Output Status	None	2 (Yellow)
	Power	1(Green)	1(Green)
	Manual	1(Yellow)	1(Yellow)
	RS-232C Status	7	None
Input Arbitration		First Come, First Serves	
Function key		Manual Select	
Input Port Selection		Auto or Manual	
Output Port Selection		None	DIP SW & AS/2-WARE
Time out Selection		0.6 - 80 sec.	
Operation Temp.		5°c - 40°c	
Stock Temp.		-20°c - 60°c	
Humidity		0% - 80%	
Enclosure		Plastic and Metal.	
Weight		1Kg	
Dimensions		270x145x34.5 mm	

Fig. 1-2-2 AS-401S/AS-402S's Function Specifications

2 INSTALLATION

2-1 INSTALLATION PROCEDURE

2-1-1 Cable Connection Table

AS-401P	4 IN/1 OUT	see Fig. 2-1-1 on page 10
AS-402P	4 IN/2 OUT	see Fig. 2-1-2 on page 10
AS-401S	4 IN/1 OUT	see Fig. 2-1-3 on page 11
AS-402S	4 IN/2 OUT	see Fig. 2-1-4 on page 11

2-1-2 Serial Port Cabling (for AS-401S/AS-402S only)

Device Connector's Pin #				Cables		AS/2 Auto Switch	
DCE DB-9	DTE DB-9	DCE DB-25	DTE DB-25	25-pin to 25-pin or 9-pin to 25-pin		DCE DB-25	DTE DB-25
2	3	3	2	Tx	Rx	2	3
3	2	2	3	Rx	Tx	3	2
8	7	5	4	RTS	CTS	4	5
7	8	4	5	CTS	RTS	5	4
4	6	20	6	DSR	DTR	6	20
6	4	6	20	DTR	DSR	20	6
5	5	7	7	GND	GND	7	7

Note: The DTE mode device must be connected to a DCE mode device because the polarity of the communication signals are different. The shadow area is a connection example for a DTE device to a DCE device.

2-1-3 Parallel Port Cabling (for AS-401P/AS-402P only)

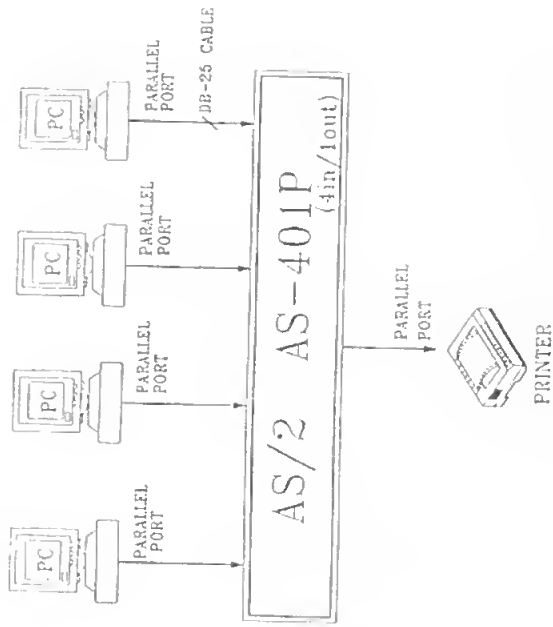| Device's Pin # DB-25	C-36	25-pin/25-pin cable or 36-pin/25-pin cable	AS/2 Auto Switch DB-25
1	1	$\overline{\text{STROBE}}$	1
2-9	2-9	D0 -- D7	2-9
10	10	$\overline{\text{ACK}}$	10
11	11	BUSY	11
12	12	PE	12
13	13	SLCT	13
14	14	$\overline{\text{AUTOFEED-XT}}$	14
15	32	$\overline{\text{ERROR}}$	15
16	31	$\overline{\text{INIT}}$	16
17	36	$\overline{\text{SLCT-IN}}$	17
18-25	19-30	GND	18-25

Fig. 2-1-1 AS-401P's 4 IN/1 OUT Configuration

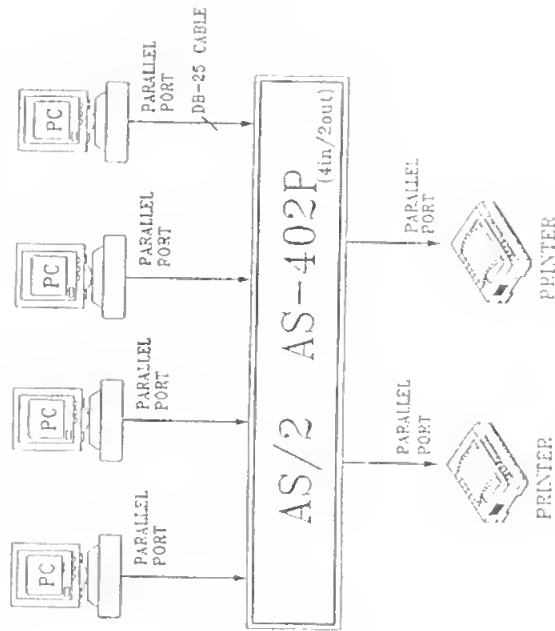

Fig. 2-1-2 AS-402P's 4 IN/2 OUT Configuration

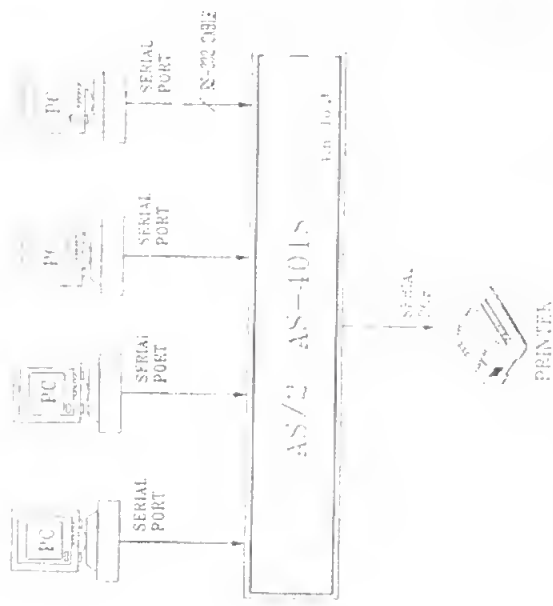Fig. 2-1-3 AS-401S's 4 IN/1 OUT Configuration

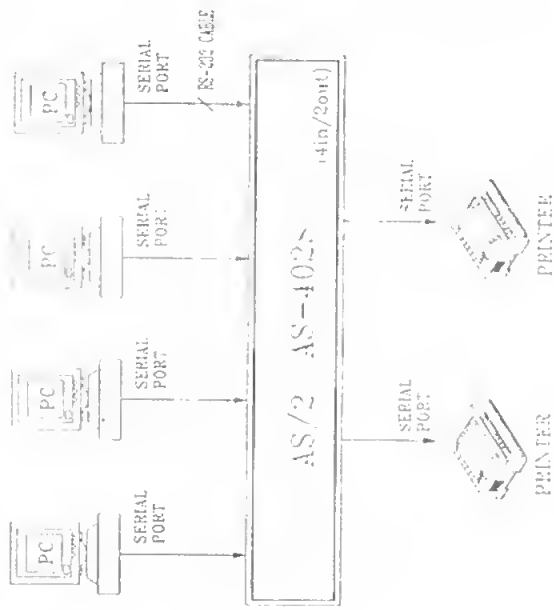Fig. 2-1-4 AS-402S's 4 IN/2 OUT Configuration

3 POWER ON PROCEDURE

3-1 POWER ON PROCEDURE

1) The way to reset the **AS 2** Auto Switch is to power on the system by plugging the DC 9v power adapter into the device's DC socket and a standard wall outlet.

   Caution: Make sure you are using the right power adapter as listed in the section 1-2 Function Specifications

2) After power is reset the initial sequence is ... LEDs are all flashing in sequence from left to right. When ... **AS 2** is ready, it ... operation and it enters the auto switching mode automatically.

3-2 AUTO SWITCHING MODE

1) In auto switching mode, the user will see the four channel's service LEDs repeatedly flash from left to right. That means the **AS 2** scans each channel at different discrete periods to check if the input channel is being scanned requests to be served ...

2) If any channel of C1, C2, C3 and C4 requests to be served the requested channel LED will be turn on and the **AS 2** will lock onto that channel. At this moment the output port of **AS 2** will only serve the locked input channel until all the input data from the requested channel has been sent out and also the time will period is up. The time out setting depends on the current DIP Switch Setting of **AS 2**

2-2 DIP SWITCH SETTING

While the **AS/2** powers on, it will read the status of the DIP switch and execute as the function setting which is shown in the following figure. The Default Setting of the **AS/2** is marked with the shadow area. The Auto Form Feed Setting is only available to the AS-401P and AS-402P. The Output Port Setting is only available to the AS-402P and AS-402S. Also the Output Port Setting is effective in the power on situation and in a no **AS/2-WARE** controlling condition. The user may change the Output Port Setting at any time by using the **AS/2-WARE**. For detailed information please refer to Section 4-1, 4-2.
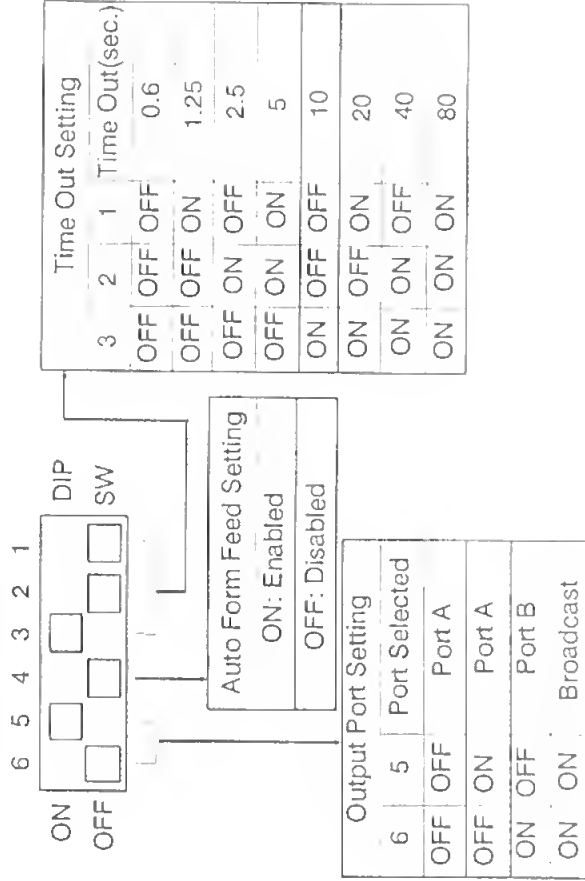

	Time Out Setting	
3	2	1	Time Out(sec.)
OFF	OFF	OFF	0.6
OFF	OFF	ON	1.25
OFF	ON	OFF	2.5
OFF	ON	ON	5
ON	OFF	OFF	10
ON	OFF	ON	20
ON	ON	OFF	40
ON	ON	ON	80

Auto Form Feed Setting	
ON:	Enabled
OFF:	Disabled

Output Port Setting		
6	5	Port Selected
OFF	OFF	Port A
OFF	ON	Port A
ON	OFF	Port B
ON	ON	Broadcast

Fig 2-2-1 AS/2 Auto Switch's DIP Switch Setting

NOTE: The DIP Switch Setting with the shadow marks are the **AS/2**'s Default Setting

3) When the 'READY' LED turns off, it indicates
   Connectors are not properly connected,
   Printer(or output device) is not switched on,
   Printer is not in ON-LINE status,
   or, Printer is out of paper.

The user is therefore requested to make corrections accordingly before going any further with the procedures.

4) When the AS/2 is serving a certain input channel, it will not switch to serve another channel even though the printing gets interrupted by switching off the printer or printer out of paper, etc.

NOTE: Only in the Manual Switching Mode user can force the AS/2 to switch to and service another input channel.

3-3 MANUAL SWITCHING MODE

1) Press the 'SELECT' button on the left side of the front panel to see the corresponding LED comes on and the AS/2 will stop to flashing in sequence. The selected input channel's LED will remain lit.

2) Now, the AS/2 is in the Manual Switching Mode. If the manual selected input channel stays on C1, then pressing the 'SELECT' button again the AS/2 will switch the input channel to the next channel C2. Pressing the 'SELECT' button again, it will switch to the next channel C3, and so on.

3) If the manual selected input channel stays on C4, then pressing the 'SELECT' button the AS/2 will enter Auto Switching Mode and scan the input channels in sequence again.

4 AS/2 -WARE

4-1 AS/2-WARE, HOT KEY CONTROL PROGRAMS

The AS/2 provides a software package, AS/2-WARE, which is used for model AS-402P and AS-402S only. The AS/2-WARE contains few resident execution files which function like a hot key controller. It can perform functions like selecting the desired port for user's application and broadcasting the input data to all output ports by pressing two or three specified keys at the same time. The detailed information will be explained in the next section.

4-2 HOW TO USE THE AS/2-WARE

There is a diskette named AS/2-WARE which is enclosed within the product. This section will instruct on how to use the AS/2-WARE with the AS/2.

Assuming your floppy disk drive is in drive "A", insert the diskette into the floppy drive A and type:

A: AS-2P_1 <Enter> or AS-2P_1 1 <Enter>   for AS-402P only, where the '1' means the 'LPT1'.

or

A: AS-2S_1 2 <Enter>   for AS-402S only, where the '2' means the 'COM2'.

When the AS-2P or the AS-2S program is loaded, the user can press the Hot Keys to switch the output port to the desired port to do his application at any time he wants.
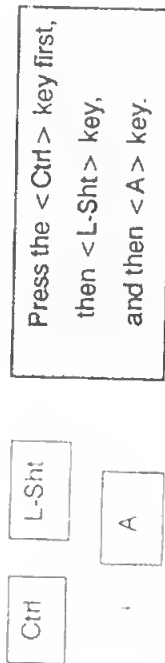
There are three kinds of choices the user has to switch the AS/2 Auto Switch by using the AS/2-WARE. They are

• Switch output port to Port A.
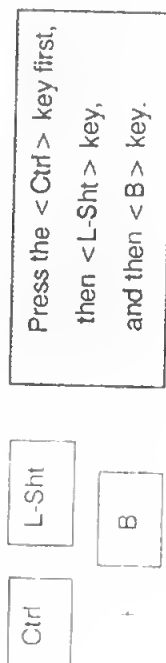• Switch output port to Port B, and

APPENDIX A

TROUBLE SHOOTING

PROBLEM	SOLUTIONS
LED fails to light up	Check if power is turned ON or not
Failure of data transmission	1. Check if the Connector of each cable is well plugged or not. 2. Check if PC is turned ON or not. 3. Check if PRINTER is turned ON or not. 4. Check if paper for PRINTER is well prepared or not. 5. Check if Print command on PC is correct or not. 6. Check if connect on computer end has been connected in accordance with menu.
Data Loss or Error	Check if the Handshake mode between the Computer and AS/2 is the Hardware Handshake mode.

If failure of printing is still exists upon aforesaid solutions, please contact your dealer for help.

• Broadcast data to two output ports. Port A and Port B.

The **AS/2-WARE** supports more than three sets of Hot Keys for the user in case of some applications using the same keys The following descriptions are one set of Hot Keys and their operating methods
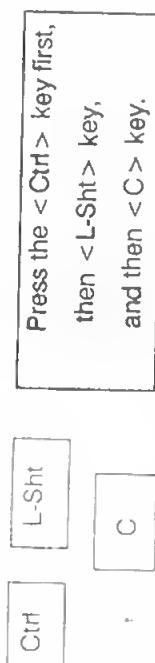
A) Switch to Port A:

| Ctrl | L-Sht | A |

Press the <Ctrl> key first, then <L-Sht> key, and then <A> key.

B) Switch to Port B

| Ctrl | L-Sht | B |

Press the <Ctrl> key first, then <L-Sht> key, and then <B> key.

C) Broadcast to Port A and Port B

| Ctrl | L-Sht | C |

Press the <Ctrl> key first, then <L-Sht> key, and then <C> key.

The more detailed information about AS/2-WARE is saved in 'READ ME' file which can be found in the AS/2-WARE floppy diskette

If the user has any product support issues or questions, please call your dealer for assistance
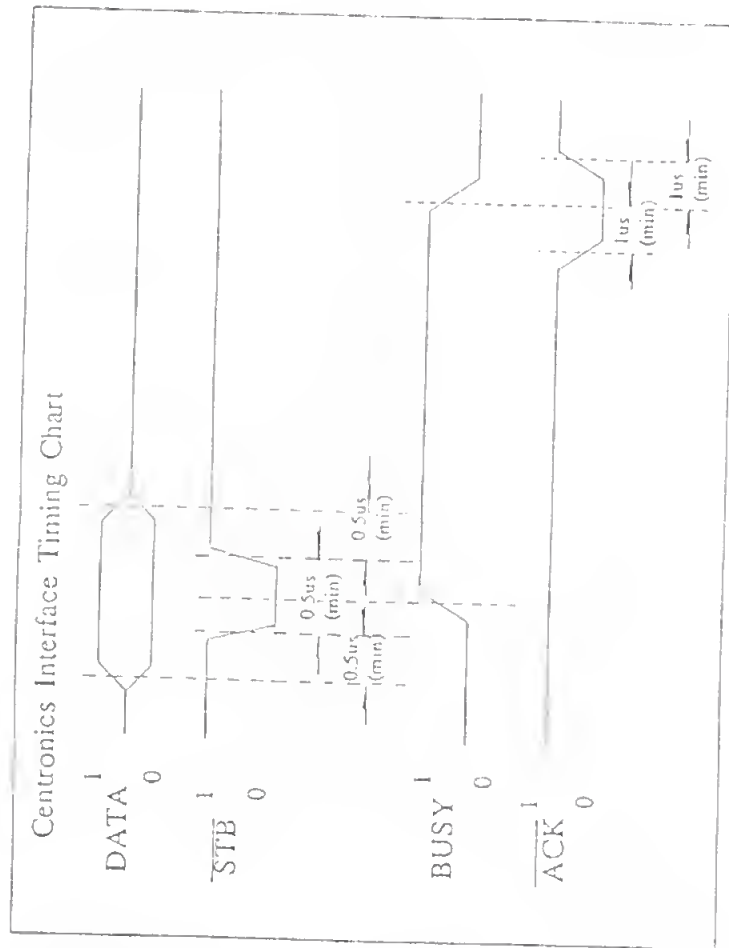
Note. L-Sht means the Left Shift key

APPENDIX B

CENTRONICS INTERFACE TIMING CHART

Centronics Interface Timing Chart

APPENDIX C

PREVENTING RADIO & TV INTERFERENCE

Warning this equipment generates, uses and radiates radio freque energy and if not installed and used in accordance with the instruction mar may cause interference to radio and television reception. It has been tested found to comply with the limits for a Class A computing device in accordar with the specifications in Subpart J of Part 15 of FCC Rules, which designed to provide reasonable protection against such interference wr operated in a commercial environment. Operation of this equipment ir residential area is likely to cause interference, in which case the user his own expense will be required to take whatever measures may be requi to correct the interference.

If this equipment does cause interference to radio or television receptic which can be determined by turning the equipment off and on, the user encouraged to try to correct the interference by one or more of the followi measures:

1. Reorient the receiving antenna.

2. Relocate the computer with respect to the receiver.

3. Move the computer away from the receiver.

4. Plug the computer into a different outlet so that computer and receiver and on different branch circuits.

5. Ensure that the mounting screws, attachment connector screws and ground wires are tightly secured.

6. Ensure that good quality, shielded and grounded cables are used for data communications.

If necessary, the user should consult the dealer or an experience radio/television technician for additional suggestions.

APPENDIX D

APPLICATION NOTES

D-1 HP LaserJet Series II Printer Application

In this section we will tell you how to configure and connect *IBM PC-XT, *HP LaserJet Series II Printer with **AS/2** (AS-401S and AS-402S only).

A. Refer to HP LaserJet Series II Instruction Manual "Getting Started".
See page "IBM PC or PC/XT 3-29", set COM1 of PC-XT to:

MODE COM1: 96,N,8,1,P
MODE LPT1: = COM1:

B. Refer to the said manual "Configuration page 3-7 ", set the printer as following:

I/O = SERIAL
BAUD RATE = 9600
ROBUST XON = OFF
DTR POLARITY = HI

C. Use a 25-conductor, pin-to-pin, DB25 M/M cable. Connect the Output Port of **AS/2** with the serial port of HP LaserJet Series II Printer.

D Use a 25-conductor, pin-to-pin, DB25 M/F Cable. Connect the Input Port of AS/2 with the serial printer port of PC-XT.

E. Power on PC-XT, **AS/2** and HP LaserJet Series II Printer to complete the setting-up.

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